2009 MELCOR Users' Workshop

Preliminary Agenda

Bethesda, MD, September 14, 2009

September 14– Monday - Beginning at 9:00 am

Registration begins at 8:30 am and sessions begin at 9:00 am. These sessions will provide discussion of new and/or improved modeling capabilities that have been implemented into MELCOR 2.1. There will be no "hands-on" exercises though there will be working demonstrations and a CD will be provided with all input decks used in the lecture. This workshop is an advanced workshop meaning that it is expected that the user has had some previous experience in running the code and evaluating results.

- 1 Working with MELCOR 2.1 – New User Capabilities .....Humphries
  This session will demonstrate recent modifications and enhancements made to MELCOR 2.1 to improve the user interface. This discussion will include the MELCOR LaunchPad, named comment blocks, variable input fields, HTML output, converter improvements, named table input, and other improvements.

- 2 Counter-Current Flow Models .....Cole
  A general model for stratified flow has been implemented into MELCOR. This model is based on the original concept from which the current modeling of PWR hot-leg natural circulation evolved. We expect it to be applicable to a number of situations including air ingress in an HTGR and natural circulation in the hot leg of a PWR. This session will provide a description of the model, a simple example, and an extract from a "real" PWR application.

- 3 HTGR Modeling.....Young
  New models have been added to MELCOR to allow simulation of High Temperature Gas Reactors (HTGRs). The HTGR models will be discussed and example input given, along with some calculation results from a Pebble Bed Reactor design.

- 4 Formula Control Functions .....Cole
  Formula control functions were added to the original release of MELCOR 2.0. However, this feature has been largely unused because of inherent problems with the coding that have been recently fixed, extended, and

extensively tested. A discussion of the formula control functions and some working examples will be provided.

- 5 Smart Restart Capabilities .....IBRAE
  Currently MELCOR has a very limited capability for modifying control functions using a restart file and there is no ability to change tabular functions from the restart at all. For user convenience and flexibility enhancements have been made to allow the user to change any CF and TF parameters and/or add new CFs and TFs at any restart.

- 6 Simplified Accumulator Model.....IBRAE
  In the current MELCOR version, the accumulator is modeled using a set of control functions, control volumes, and flow paths. A simplified "accumulator" model has been added to the ESF package which provides a source of liquid in a specified control volume based on the new model and model parameters. This session will provide a brief discussion of the model as well as input parameters needed to fully characterize the accumulator. A working input deck with the required input will be provided.

- 7 MELCOR Bug Report .....Humphries
  This session will present a list of important bug fixes that have been performed in the past year with a description of possible user impact.